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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,011	11/13/2003	Philip Sullivan	56.0726	1010
27452	7590	11/04/2005		
SCHLUMBERGER TECHNOLOGY CORPORATION IP DEPT., WELL STIMULATION 110 SCHLUMBERGER DRIVE, MD1 SUGAR LAND, TX 77478			EXAMINER RICHARD, CHARLES R	
			ART UNIT	PAPER NUMBER
			1712	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/707,011	SULLIVAN ET AL.	
	Examiner	Art Unit	
	C. R. Richard	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☒ Claim(s) 12-19, 21, 22 and 24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3-30 & 4-5-2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 5 April 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document be submitted. Namely, no copy of GB 2,332,224 was sent. Applicant did submit a copy of US 2,332,224; this patent is not related to the subject matter of the present invention.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because of the following.

Non-initialed and/or non-dated alterations have been made to the oath or declaration in inventor Davies' name and signature. See 37 CFR 1.52(c). Note that Inventor has also signed at two different times and such alterations occur in both instances – one of these signatures appears dated in error (given as 16 March 2003).

The oath does not identify the citizenship of inventor Couillet.

Drawings

3. The drawings are objected to because of the following. There is no key to the symbols used in Figure 1. Figure 4 does not match up with its description in the

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specification – time of 30 minutes. The labeling on the axes of Figure 5 and the symbol sitting at the y coordinate of 10 and x coordinate of about 0.35 is unclear. The shading in Figure 6 runs into the margins. Titles would also be helpful for all of the figures.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the Examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to

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comply with 35 U.S.C. 112, first paragraph. Examples of some problems in the specification are as follows.

The word "Surfactants" in the title should be singular. The first sentence in the Abstract is unclear. The specification proper begins with the word "Description" before the title. Many sentences in the specification do not end with any punctuation and/or are not in standard English. There are extraneous characters in places. Reference is made to figures and formulas that are not in the specification, but apparently should have been. Paragraphs run into one another without skipped lines or indents.

Applicant should carefully read through the entire specification and make appropriate revisions.

Claim Objections

5. Claim 12 (and claims 13-19, 21-22 and 24 by dependency) are objected to because of the following informalities. The parenthesis in claim 12 after "of:" appears to be in the wrong place. The word "and" appears to be missing between "viscoelastic surfactant" and "a hydrophobically-" in (b) of claim 12. Appropriate correction is required.

Note that claim 20 is a duplicate of claim 9; this appears to be due to a typographical error in claim 20.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. A fair reading of the specification indicates that it is critical or essential to the practice of the invention that colloidal particles be injected into a well, but this step is not included in the claim(s); thus the claims are not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In these claims, an aqueous suspension of colloidal particles is provided, but then no further mention is made of this suspension. A fair reading of the specification indicates that the invention requires that the particles be injected into the well with the other components mentioned in the claims. The claims as written do not even specify where the "providing" is done – it could be in a different place than the well given the way the claims are worded.

Claim 17 is rejected as indefinite, since it depends from itself – it apparently should depend from claim 16.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 7 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Peiffer in US Patent 4,910,248.

Peiffer teaches aqueous fluids containing cationic viscoelastic surfactants in the form of rod-like colloidal particles, the fluids being useful in well treatment operations (see column 4, line 59 to column 5, line 22; Figure 4; column 8, lines 11-37; column 14, lines 10-27 and lines 40-45). These fluids exhibit shear thickening (see column 5, lines 1-10). The steps of the rejected claims are implied by the use stated.

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12. Claims 1, 4 and 11 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Samuel et al. in US Patent Application Publication 2003/0166471.

Samuel describes a fluid loss pill that includes a brine solution and a (zwitterionic) viscoelastic surfactant; the pill is used in well treatment by injecting it into a well to control lost circulation (see Abstract). The pill may carry size graded particulates, including smaller sized bridging particles such as silica fines – this would of course include some in the colloidal size range (see page 7, paragraph 60).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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14. Claims 1-10, 12-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce et al. in US Patent 5,929,002 in view of disclosures in WO 99/50530.

Joyce teaches a fluid loss control additive comprising starch and fine particulate mica that can be part of a fracturing fluid; said fracturing fluid may be injected into a borehole and used to fracture a formation (see Abstract). The starch may be modified such as grafted with styrene (hydrophobically modified) (see column 4, lines 40-43). Mica here refers to various silicates (see column 4, lines 48-52); the median particle size is most preferably below 32 microns (see column 4, lines 54-56) – this would include colloidal size particles. Other particles may be included (preferably of median particle size below 50 microns – so would include colloidal size particles) such as finely divided silica and alumina (see column 4, lines 56-64); these other particles are used preferably in formations of permeability of greater than 50 md (see column 5, lines 35-40). Surfactants may also be used as part of the additive (see column 5, lines 40-50). The fluid loss additive can be added to any fracturing fluid, preferably an aqueous based one (see column 6, lines 1-18).

Joyce teaches all of the limitations of the rejected claims, except for the use of a surfactant that is specifically viscoelastic (of any sub-type), the specific amounts, sizes and shapes of the particles and the specific amount of hydrophobically modified polymer.

The WO reference teaches a composition comprising both surfactants and/or polymers (see page 5, lines 25-30). The surfactants may be viscoelastic (see page 5,

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lines 30-32), and the polymer may be a hydrophobically modified water soluble polymer (see page 6, lines 5-10). These compositions may be used in fracturing (see page 7, lines 35-38). Examples are given of cationic and anionic surfactants (see pages 13, 17, 20 and 23).

From the teachings of these references (especially that of Joyce at column 6, lines 1-18 that fluid loss additive can be added to any fracturing fluid, preferably an aqueous based one), it would have been obvious to one of ordinary skill in the art to combine the fluid loss additives of Joyce with the base fracturing fluids of the WO reference and using the result in fracturing. Claims 1-4, 9-10 and 20 are rendered obvious.

As to the concentration of the polymer in claim 12 (and claims dependent on it), one of ordinary skill in the art would have made compositions with this limitation in the course of routine optimization of the fracturing fluids here. From this and the teachings and conclusions above, claims 12-15 and 21 are rendered obvious. (Note that claim 20 would also be rendered obvious at this point if it depended from claim 12).

The particles sizes and shapes of claims 5-8 and 16-19 would be expected to be present in at least some amounts in the disclosed finely divided mica, silica, etc. Thus claims 5-8 and 16-19 are also rendered obvious. In any case, one of ordinary skill in the art would have made compositions having these limitations and those of claims 23-24 in the course of routine optimization of the fracturing fluids here.

15. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce et al. in US Patent 5,929,002 in view of disclosures in WO 03/056130.

Joyce has been discussed in detail above. It teaches all of the limitations of the rejected claims, except for the use of a surfactant that is specifically viscoelastic (of any sub-type), the specific amounts, sizes and shapes of the particles and the specific amount of hydrophobically modified polymer.

The WO reference teaches a fracturing fluid comprising a viscoelastic surfactant and a hydrophobically modified polymer wherein the concentration of the polymer is between its overlap concentration and its entanglement concentration (see Abstract). The surfactant may be cationic, anionic or zwitterionic (see page 9, lines 10-12). The fluid may also contain some fluid loss additive such as a mixture of starch and mica (see page 15, lines 6-8) – this is the base fluid loss additive disclosed in Joyce.

From the teachings of these references (especially that of Joyce at column 6, lines 1-18 that fluid loss additive can be added to any fracturing fluid, preferably an aqueous based one), it would thus have been obvious to one of ordinary skill in the art to combine the fluid loss additives of Joyce with the base fracturing fluids of the WO reference and using the result in fracturing. Claims 1-4, 9-15 and 20-22 are rendered obvious. (Note that claim 20 would also be rendered obvious at this point if it depended from claim 12).

The particles sizes and shapes of claims 5-8 and 16-19 would be expected to be present in at least some amounts in the disclosed finely divided mica, silica, etc. Thus claims 5-8 and 16-19 are also rendered obvious. In any case, one of ordinary skill in the

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art would have made compositions having these limitations and those of claims 23-24 in the course of routine optimization of the fracturing fluids here.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. US Patent Nos. 5,948,733 and 6,194,356 disclose methods at least similar to those of the present invention.


Any inquiry concerning this communication or earlier communications from the Examiner should be directed to C. R. Richard whose telephone number is 571-272-8502. The Examiner can normally be reached on M-Th, 8am-6pm and alternate Fridays, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles N. Michael


PHILIP TUCKER
PRIMARY EXAMINER
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